Claims

1. An isolated TgAMA-1 polypeptide molecule comprising an antigenic fragment of the polypeptide sequence set forth as amino acids SEQ ID NO:1.

2. A fusion protein comprising the antigenic polypeptide of claim 1.

3. An isolated TgAMA-1 nucleic acid molecule selected from the group consisting of:

(a) a fragment of the nucleotide sequence set forth as nucleotides 1-2507 of SEQ ID NO: 2 between 12 and 2506 nucleotides in length, and

(b) complements of (a),

wherein the fragment encodes the isolated polypeptide of claim 1.

4. An expression vector comprising the isolated nucleic acid sequence of claim 3 operably linked to a promoter.

5. An expression vector comprising an isolated nucleic acid molecule of SEQ ID NO: 2. operably linked to a promoter.

6. A host cell transformed or transfected with the expression vector of any one of claims 4 and 5.

7. The host cell of claim 6, wherein the cell is an insect cell.

8. The host cell of claim 7, where in the insect cell is a High Five™ cell.

9. A transgenic non-human animal comprising the expression vector of any one of claims 4 and 5.

10. The transgenic non-human animal of claim 9, wherein the animal expresses a variable level of TgAMA-1.

11. The transgenic non-human animal of claim 9, wherein the animal expresses an antigenic fragment of SEQ ID NO: 1.

12. The transgenic non-human animal of claim 9, wherein the animal is a mammal.

13. The transgenic non-human animal of claim 9, wherein the animal is a bovine.

14. A vaccine composition comprising the isolated TgAMA-1 polypeptide of claim 1 and an adjuvant.

15. A vaccine composition comprising TgAMA-1 or a functionally active variant thereof, and an adjuvant.

16. The vaccine composition of claims 14 or 15, wherein the adjuvant is selected from the group consisting of: mineral gels, e.g., aluminum hydroxide; surface active substances such as lysolecithin, pluronic polyols; polyanions; peptides; alum, MDP, N-acetyl-muramyl-L-threonyl-D-isoglutamine (thr-MDP), N-acetyl-nor-muramyl-L-analyl-D-isoglutamine, and N-acetylmuramyl-L-alanyl-D-isoglutaminyl-L-analanine-2-(1'-2'dipalmitoyl-sn-glycero-3-hydroxyphosphroyloxy)-ethylamine, monophosphoryl lipid A; saponins (QS21; DQS21); QS-7, QS-17, QS-18, and QS-L1; incomplete Freund's adjuvant; complete Freund's adjuvant; montanide; vitamin E, oil emulsions, and various water-in-oil emulsions prepared from biodegradable oils such as squalene and/or tocopherol.

17. A method for immunizing a subject comprising

administering to the subject an effective amount for immunizing the subject of a vaccine of any one of claims 14 or 15.

18. The method of claim 17, wherein the subject is a mammal.

19. The method of claim 17, wherein the subject is a human.

20. The method of claim 17, wherein the subject is at risk of infection from *Toxoplasma gondii*.

21. The method of claim 20, wherein the subject is a mammal.

22. The method of claim 20, wherein the subject is a human.

23. A TgAMA-1 binding polypeptide that selectively binds to the isolated TgAMA-1 polypeptide of claim 1.

24. The TgAMA-1 binding polypeptide of claim 23, wherein the binding polypeptide is an antibody or antigen-binding fragment of an antibody.

25. The TgAMA-1 binding polypeptide of claim 24, wherein the antibody or antigen-binding fragment specifically binds to a region comprising about 12 or more cysteine residues of the isolated polypeptide of claim 1.

26. The TgAMA-1 binding polypeptide of claim 23, wherein the binding polypeptide blocks entry of Toxoplasma parasite into a cell.

27. The TgAMA-1 binding polypeptide of claim 23, wherein the binding polypeptide is a monoclonal antibody.

28. The TgAMA-1 binding polypeptide of claim 23, wherein the binding polypeptide is a humanized monoclonal antibody.

29. An isolated anti-idiotype antibody that selectively binds to the TgAMA-1 binding polypeptide of claim 23.

30. A method for treating a toxoplasma infection, comprising:

administering to a subject in need of such treatment, an effective amount of a TgAMA-1 binding polypeptide of claim 23 to treat the toxoplasma infection.

31. The method of claim 30, wherein the TgAMA-1 binding polypeptide blocks the entry of Toxoplasma parasite into a cell.

32. The method of claim 30, wherein the subject is a mammal.

33. The method of claim 30, wherein the subject is a human.

34. A method for reducing the likelihood of a toxoplasma infection, comprising:

administering to a subject in need of such treatment, an effective amount of a binding polypeptide of claim 23 to reduce the likelihood of toxoplasma infection.

35. The method of claim 34, wherein the binding polypeptide blocks the entry of Toxoplasma parasite into a cell.

36. The method of claim 34, wherein the subject is a mammal.

37. The method of claim 34, wherein the subject is a human.